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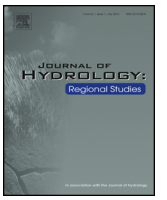

Peer review report 2 on Regional scale estimates of baseflow and factors influencing baseflow in the Upper Colorado River Basin

Original Submission

Recommendation

Minor Revision

Comments to the author

Comments on Manuscript Number: EJRH-D-15-00002

22-23 Add the comment from the introduction that the Colorado River supplies water and power for over 40 million people.

32-33 Try to avid imprecise, passive voice in abstracts. Include as much specific information as possible within the space limitations. Look for phrases such as 'were investigated', 'are described', 'were correlated' and replace with data or specifics. Which characteristics? Does 'correlated' mean 'statistically compared to'? Are 'environmental factors' the same as 'basin characteristics'?

37 Which land cover characteristics? An abstract should be a condensation, not a description of what is in the manuscript.

51 I don't think you mean 'precipitation derived from snow melt'. Snow is a subset of 'precipitation'. Runoff and baseflow are derived from snowmelt.

56 widely

58 'scales'

62 I know I am fighting a losing battle, but 'impact' refers to a violent collision. Use 'effects' for a noun, and 'affect' for a verb.

66 So far you have used 'basin characteristics', 'environmental factors', and 'physical environmental factors'. I recommend just using 'basin characteristics'.

66 'Gradient' has a specific meaning of a continuous change in value from high to lower over a specified distance. You probably mean 'range'.

84-86 When referring to previous works, use the past tense only for completed actions. Miller et al 'estimated', but they 'show' and 'suggest'.

90-91 This list should probably also be in the abstract.

DOI of the original article:http://dx.doi.org/10.1016/j.ejrh.2015.04.008.

2214-5818/$ – see front matter
http://dx.doi.org/10.1016/j.ejrh.2015.05.003

128 Not clear what is meant by 'spanning different time periods'. Does this refer to a comparison between gages, or data continuity at a gage?

157-158 Reservoirs can interfere with the basic assumptions of the mass balance method through increased evaporation. How was the 2 km interval determined?

166 'affected by'

192 This isn't clear. Which SC is refered to in line 192?

212-13 This concept is worthy of a few more sentences of elucidation. The concept that gaged data integrate basin characteristics is pretty fundamental to basin hydrology studies. However, as stated later in the paper, headwater basins have a large influence on stream chemistry at a downstream gage. Not all areas above a gage have the same influence on chemistry.

241 Isn't the preferred or more common spelling Uinta?

331-34 Is there a 'minimum set' of basin variables that predict baseflow yield? For example, the dependence of temperature, PET, % snow, infiltration capacity and veggies suggests that elevation could be a proxy variable for other basin variables that are more difficult to obtain or measure.

362-364 [I wrote this before reading lines 384-390, but I will include my thoughts anyway] While not directly part of this study, it is interesting to note the importance of snow to baseflow generation in the UCRB. Annual snowpack depths and days with snow cover have been decreasing in many areas of the western US as a result of a roughly 2 degree F increase in average annual temperatures. It would be very interesting to use the results of this study, coupled with CMIP5 model data to forecast potential changes in baseflow, and therefore streamflow, in the UCRB. In coming decades snowpack will decrease, PET will increase, tree cover and grasslands will decrease, and shrublands will increase.

Anonymous reviewer 2

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